L6: Entry 15 of 39 File: USPT Jan 11, 2000

DOCUMENT-IDENTIFIER: US 6014037 A
TITLE: Method and component arrangement for enhancing signal integrity

Brief Summary Text (6):
However, certain problems tend to arise when operating at such data transmission rates. For example, at data rates as low as 100 Mbits/s, discontinuities at the interconnect cause a problem of reflecting a portion of a transmitted data signal back to the transmitter integrated circuit. Such signal reflection often destructively combines with the transmitted signal to degrade the signal received by a destination integrated circuit.

Brief Summary Text (9):
Accordingly, there is a need for an integrated circuit communications system and/or method that reduces distortion and ringing of communication signals transmitted along a bus transmission line while also reducing driver power requirements caused by increased power dissipation.

Detailed Description Text (22):
Similarly, for communications systems having groups of integrated circuit components along the bus between the signal transmitting component and the signal receiving component wherein intra-group components have similar characteristic input impedances, coupling damping impedances to the first component in the direction of signal travel to the destination component within the respective group adjusts the input impedances of the respective integrated circuit components as seen from the bus in such a way to effectively reduce the signal distortion and ringing problems discussed hereinabove. Such coupling arrangement is suitable for use not only when the intra-group components are coupled adjacent to one another along the bus between the signal transmitting component and the signal receiving component but also when components from one group are interleavingly coupled or randomly interspersed with components from other groups along the bus between the signal transmitting component and the signal receiving component.

Detailed Description Text (37):
Similarly, for communications systems 10 having more than one group of components with respective similar characteristic impedances whose individual components are arranged in any order, interleaved or otherwise, between the signal transmitting component and the signal receiving component, coupling of damping impedances of the first component in the direction of signal travel to the destination component within each respective group tends to reduce the overall signal distortion and ringing in the communications system. Thus, as shown in FIG. 8b, when components from one group are interleavingly coupled or randomly interspersed with components from another group along the bus between the signal transmitting component and the signal receiving component, signal distortion and ringing are reduced by coupling a damping impedance to components B.sub.1, C.sub.1 and A.sub.1.

Detailed Description Text (44):
For example, in the context of communications system 10 as shown, controller 72 causes a first test signal to be transmitted, e.g., from integrated circuit component 20.sub.a to integrated circuit component 20.sub.c. Controller 72 compares the integrity of the test signal received by 20.sub.c to the original transmitted test signal to determine what effect integrated circuit component 20.sub.b has on a signal transmission from integrated circuit component 20.sub.a to integrated circuit component 20.sub.c. Similarly, controller 72 has another test signal transmitted, e.g., from integrated circuit component 20.sub.a to integrated circuit component 20.sub.d to determine the effect that integrated circuit components 20.sub.b and

20.sub.c have on the integrity of such signal transmission.